

APPENDIX 6

TERMINAL INSTRUCTIONAL PROGRAM GUIDE

SECTION 1. INTRODUCTION

This IPG includes information about the following seven development stages:

- I. FAA Academy Training (Courses 50032 and 50034).**
- II. Flight Data (Course 55060).**
- III. Clearance Delivery (Course 55061).**
- IV. Ground Control (Course 55062).**
- V. Local Control/Cab Coordinator (Course 55063).**
- VI. Nonradar Terminal Control (Course 55064).**
- VII. Radar Control (Course 55065).**

Target hours for the completion of each operational position shall be assigned according to the facility training directive. OJT shall be assigned as specified in Chapter 3 of this order. Additional OJT, skill enhancement training, and other forms of training may be recommended by the individual's training team, as necessary, to provide the individual with every opportunity for success.

The sequence of terminal facility training Stages III through VII is intended only as a normal progression. The facility manager, or his/her representative, shall determine the appropriate sequencing of these development stages relative to the facility level. However, Stage VI shall be completed prior to Stage VII, and all development stages shall be completed prior to promotion to FPL.

The instructional process is designed to provide facilities with the flexibility to tailor the training program to the needs of the individuals in training, thus allowing for a more effective and successful training experience. OJT and performance and certification skill checks shall be performed and documented as specified in Chapter 3 of this order.

SECTION 2. STAGE I: FAA ACADEMY TRAINING

OVERVIEW: This section presents the following FAA Academy training:

- I. Terminal Tower Cab Training (50032):** This training is designed for new developmental specialists.
- II. Terminal Basic Radar Training (50034):** This training is designed to train controllers in radar approach control skills in a simulated environment.

SECTION 2A. TERMINAL TOWER CAB TRAINING (Course 50032)

GENERAL: The purpose of this development stage is to provide new developmental specialists with an orientation and indoctrination of the FAA organization; to provide knowledge of job-related subjects in preparation for subsequent skill-oriented training; and to instruct in specific functions of the tower/cab control positions while evaluating the potential of the developmental early in his/her prospective career.

This stage of training is administered in two parts: classroom instruction and classroom/laboratory environment.

PREREQUISITE: Entry qualifications as established by OPM announcements for ATCS positions.

CLASSROOM TRAINING: The classroom portion of training is administered using lesson plans developed by the FAA Academy.

**CLASSROOM/
LABORATORY
TRAINING:** This training is administered utilizing FAA Academy-prepared instructional materials and a synthetic FAA Academy tower working within an FAA Academy approach control area. The training is primarily oriented to procedural studies and demonstration/evaluation control problems.

1. CLASSROOM TRAINING.

a. FAA Orientation.

(1) The individual shall be thoroughly briefed on the following subjects:

- (a) Employment.
- (b) Civil rights.
- (c) Student travel.
- (d) Security.
- (e) Human relations:
 - 1 Value clarification.
 - 2 Communication with others.
 - 3 Team building.
 - 4 Principal responsibilities of an employee.
- (f) Employee handbook.
- (g) Drug Awareness Program.

(2) Evaluation. The primary purpose of this training is to indoctrinate the individual into the workings of the Federal service. No examination is administered.

b. Fundamentals of Air Traffic Control. This training provides a basic knowledge of ATC-related subjects and is administered as a formal program of instruction. It includes three pass/fail examinations based on technical material.

(1) The individual shall successfully complete the following objectives:

- (a) Basic concepts of aviation.
- (b) Aircraft identification and performance.
- (c) Aviation weather.
- (d) Equipment.
- (e) Flight plan services.

- (f) Air traffic control communications and procedures.
- (g) Separation procedures.
- (h) Radar/Non Radar - initial arrival and departure separation..
- (i) Air traffic control services.

(2) Evaluation.

(a) Knowledge. Three examinations shall be given at the completion of instruction: Tower Visibility exam, DBRITE exam, and CTO exam. The developmental's score must be 80 percent or higher on the Tower Visibility exam, and 70 percent or higher on the DBRITE and CTO exams to satisfactorily complete this academic training. If the individual does not meet the requirements for successful completion of the examinations, the TA or AMA-550 may determine that additional training is warranted.

1 This training may include:

- (aa) Additional classroom instruction and/or
- (bb) CBI training.

2 If the individual does not meet the requirements for successful completion after additional training, the provisions of FAPM Letter 330-1 shall be followed.

(b) Counseling. Instructors are responsible for providing initial counseling. It is important that timely counseling be provided when developmental weaknesses are identified, in an attempt to resolve problems impeding the developmental's progress. Formal documentation of each counseling session is required and shall become part of the developmental's records.

2. CLASSROOM/LABORATORY TRAINING.

The individual shall be able to perform the following during the course of laboratory control scenarios:

- a. Manage position and sector resources.
- b. Resolve aircraft conflicts.
- c. Manage air traffic sequences.
- d. Route or plan flights.
- e. Assess weather impact.
- f. Respond to system/equipment failures.

3. PERFORMANCE VERIFICATION (PV).

a. PV shall consist of an academic examination and an assessment of a skill-based scenario. A score of 70 percent is required for successful completion of the academic assessment.

b. PV specialists and/or current field staff or supervisory personnel shall conduct the skill-based scenario assessments.

c. Students shall be assessed within the requirements outlined in the current edition of Order 7110.65 and Chapter 3 of this order.

d. Following the problem, the student shall be "debriefed" by the PV specialist. During this debrief, the PV specialist shall ask for explanations regarding questionable control actions and weigh responses in order to evaluate the student's cognitive skills. This investigation provides PV personnel the opportunity to identify areas that need improvement.

e. Students shall be assessed within the PV standards process. The standards process consists of four critical elements:

(1) Rater Reliability. Evaluation consistency is maximized by thorough training of TDY PV personnel and instruction on the student debriefing process. This provides a reliable method for insuring that assessments take place in a similar manner from student to student.

(2) PV Scenarios. The scenarios incorporate field requirements, so when a student can perform the tasks necessary to successfully run a problem, he/she will have demonstrated the skills necessary to begin field training.

(3) PV Assessment. The PV process is based on expert assessment. PV is not assessing at the full performance skill level. Rather, PV is interested in seeing that students have the fundamental knowledge necessary in order to begin field OJT. Initial assessments shall be conducted using one PV specialist observing one student.

(4) PV Reassessment. In the event of an unsuccessful PV scenario, the student shall receive additional training from the FAA Academy targeted to identified weaknesses. After completion of this training, another PV scenario shall be conducted using two PV specialists not involved in the first assessment. The two PV specialists shall then reach consensus before a decision can be made regarding the student's success or failure.

f. In the event a student is unsuccessful during the second assessment, PV shall notify the appropriate regional Air Traffic division. Processing of the unsuccessful student shall be determined by the Air Traffic division in accordance with appropriate directives.

SECTION 2B. TERMINAL BASIC RADAR TRAINING (Course 50034)

GENERAL: The purpose of this development stage is to train controllers in radar approach control skills in a simulated environment.

This stage of training is administered in a classroom/laboratory environment.

PREREQUISITE: Successful completion of Course 50032 or Courses 55060-55063.

**CLASSROOM/
LABORATORY
TRAINING:** This training is administered utilizing FAA Academy-prepared instructional materials and a dual sector, level 3 environment.

1. PART-TASK EXERCISE TRAINING.

a. FAA Academy Airspace and Procedures.

(1) The student shall demonstrate knowledge of FAA Academy procedures and airspace, as provided in the facility directives, and demonstrate the ability to recall the following:

- (a) Airways and intersections.
- (b) ARTCC sectors and adjacent airspace.
- (c) FAA Academy airspace configuration.
- (d) Satellite airports.
- (e) Air traffic facility frequencies.
- (f) Departure and arrival gates.
- (g) MEAs and MVAs.
- (h) Approach names, fixes, and minimum altitudes.

(2) The student shall show the ability to apply the following:

- (a) Radar procedures used between approach controls, and between approach control and tower.
- (b) Radar procedures used at airports.
- (c) Procedures as specified in the FAA Academy Facility Orders.
- (d) Position relief briefing procedures.

b. Radar and Automated Radar Terminal System (ARTS) Equipment Functions.

(1) Using a radar simulator, the student shall demonstrate knowledge of equipment control functions.

- (2) The student shall identify primary and secondary radar terms and definitions.
- (3) The student shall demonstrate the ability to perform all ARTS entries.

c. Radar Identification. The student shall radar-identify aircraft using procedures in Order 7110.65.

d. Separation. The student shall achieve the separation standards contained in Order 7110.65 by demonstrating the ability to:

- (1) Recognize when radar separation is achieved and lost.
- (2) Recognize distances between targets by using video map marking.
- (3) Apply radar vectoring techniques.
- (4) Apply speed control.
- (5) Assign and verify altitudes.

e. Transfer of Control. The student shall use Order 7110.65 procedures, ARTS, and interphone to coordinate use of airspace, transfer control of aircraft, and transfer radar identification.

f. Departure, Arrival, and Approach Procedures.

- (1) The student shall apply Order 7110.65 and FAA Academy ATCT:
 - (a) Departure procedures and separation minima.
 - (b) Arrival and approach procedures.

(2) The student shall practice approach clearance phraseology, missed approach instructions, speed control, and vectoring.

(3) The student shall interpret weather conditions as they relate to approaches and shall use approach plates to select suitable approaches.

(4) The student shall experience a TCAS event.

g. Additional Services. The student shall apply merging target procedures and issue weather and bird advisories.

h. Radar Services to VFR Aircraft. Demonstrating knowledge of types and operational requirements of terminal airspace, the student shall provide services to VFR aircraft to include traffic/safety alerts.

i. Visual Approaches. The student shall demonstrate knowledge of visual approach procedures and phraseology contained in Order 7110.65 by:

- (1) Explaining conditions required to conduct visual approaches.
- (2) Vectoring and clearing aircraft for visual approaches.
- (3) Vectoring VFR aircraft for sequencing.

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j. **Emergencies, Radio Failures and Hijacks.** The student shall demonstrate the ability to handle aircraft emergencies, hijacking, radio failures, and fuel dumping in compliance with Order 7110.65.

2. RADAR LABORATORY TRAINING AND EVALUATION.

a. **Radar Academic Procedures.** With emphasis on scanning techniques, listening and remembering skills, sector management, team interaction and coordination, and in accordance with Order 7110.65, the student shall demonstrate the ability to:

- (1) Describe how, when, and where to effect/receive a pointout and/or handoff.
- (2) Identify FAA Academy North and FAA Academy South responsibilities in establishing a sequence.
- (3) Describe procedures for handling arrivals and departures to and from satellite airports, handling VFR aircraft requesting IFR clearances while airborne, and termination procedures.
- (4) Describe tunneling departures as one method of separating arrivals and departures.
- (5) Explain criteria for joining airways.
- (6) Identify Class C airspace boundaries, methods of handling airspace violators, and IFR cancellations in Class C airspace.
- (7) Explain the technique of vectoring arrivals to a downwind.
- (8) State the procedures for completing a position relief briefing.
- (9) Explain how to apply radar separation when heavy jet traffic is involved.
- (10) Describe radar identification and services to VFR popups.
- (11) Describe the procedures for handling reroutes, overflights, overflight cancellations, and approaches to an uncontrolled airport.
- (12) Recognize similar-sounding callsigns and initiate appropriate action.
- (13) Identify the beacon codes assigned to hijacks and the application of procedures involving hijacks.
- (14) Explain the effects of high-performance military climbs.
- (15) Describe procedures for handling emergencies, joining airways, and transponder failures.
- (16) Explain the application of radar separation, speed control, and vectoring techniques as applied to departing and arriving aircraft.

(17) Identify procedures for:

- (a) Identification of VFR aircraft.
- (b) VFR practice approaches.
- (c) Handling VFR arrivals without the automatic terminal information service (ATIS).
- (d) Handoffs of VFR aircraft to the center.
- (e) VFR arrivals to secondary airports.
- (f) VFR aircraft below MVA.

(18) Describe effects of winds aloft on vectoring and speed control.

(19) State the correct coordination on landline for sequence and other items.

(20) Provide traffic advisories and safety alerts.

(21) Describe the ARTS controls and their functions, and correct entries.

b. Evaluation.

(1) **Knowledge.** Periodic skill checks shall be performed to provide feedback as to expected performance relative to current levels of training. Areas needing improvement shall be noted and recommendations made for targeted training.

(2) **Counseling.** Instructors are responsible for providing initial counseling. It is important that timely counseling be provided when student's weaknesses are identified, in an attempt to resolve problems impeding his/her progress. Formal documentation of each counseling session is required and shall become part of the student's records.

(3) **Assessment.**

(a) At the conclusion of laboratory training, each student shall be given one assessment scenario during which a PV specialist will evaluate the individual's strengths and weaknesses.

(b) After a debriefing session with the student's instructor, the PV specialist shall debrief the student. This is not a pass/fail assessment.

(c) Upon completion of PV, the individual will return to his/her facility for the next stage of training.

(d) PV shall provide a synopsis of the assessment to the student's TA with strengths and weaknesses identified.

SECTION 3. STAGE II: FLIGHT DATA POSITION TRAINING (Course 55060)

GENERAL: The purpose of this development stage is to prepare the individual for flight data position qualification and certification.

The individual has completed PV, which covered the fundamentals of ATC and afforded the first opportunity to apply control procedures in a simulated environment. The individual has also demonstrated a capability to perform in this environment and is now ready for training in the specific items needed to enter OJT on the flight data operational position. This stage of training is administered in two parts: classroom instruction and OJT.

PREREQUISITE:

Entry qualifications as established by OPM announcements for ATCS positions, or successful completion of applicable section(s) of Stage I.

CLASSROOM TRAINING:

The classroom portion of training is administered using lesson plans developed by the FAA Academy and the facility and conducted under the direction of the TA. In some facilities, classroom training for more than one area may be taught at the same time (e.g., flight data and clearance delivery). In these situations, lesson plans should be developed accordingly.

If a terminal facility does not have a support staff to conduct classroom instruction, the facility is responsible for developing self-study materials that will cover all of the required subject matter.

OJT:

OJT shall be conducted in the operational environment under the direction of the individual's training team. OJT shall be conducted after successful completion of the necessary classroom training.

1. CLASSROOM TRAINING.

a. Part I. The individual shall successfully demonstrate the skills listed below in the classroom section of training.

(1) **Compile Statistical Data.** In accordance with Orders 7110.65 and 7210.3 and local directives, the individual shall be able to identify and correctly record statistical data relating to various types of air traffic activities using the following forms:

- (a) Daily Record of Facility Operation, 7230-4.
- (b) Personnel Log.
- (c) Position Log, 7230-10.
- (d) Airport Traffic Record, 7230-1.
- (e) Instrument Operations, 7230-26.
- (f) Approach Data Worksheet, 7230-16.
- (g) Multi-Channel Recorder Check Record, 6670-1.
- (h) Incident Report, 8020-11.
- (i) Flight Assist Report, 7230-6.

(2) **Prepare and Distribute Flight Data.** In accordance with Orders 7110.65, 7210.3, and 7340.1, Contractions; and local directives, the individual shall be able to:

- (a) Identify the types of FAA terminal facilities.
- (b) Identify, by their alphanumeric designators, the positions of operation at his/her facility.
- (c) Explain the coordination required between flight data and other positions of operation at his/her facility.
- (d) Determine acceptable handwritten entries and make strip revisions.
- (e) State the different types of flight progress strips and their uses.
- (f) Identify the data posted in spaces 1 through 9 on the three variations of the terminal flight progress strip.
- (g) Post the required data on the three variations of the flight progress strip using standard characters, symbols, and abbreviations.

(3) Operate FAA Interphone Systems. In accordance with Orders 7110.65, 7210.3, and 7340.1 and local directives, the individual shall be able to:

- (a) List the types of interphone circuits.
- (b) List the components of an interphone system.
- (c) List three methods used for signaling on interphone circuits.
- (d) List three circuit status lamp indications and explain the circuit status each indicates.
- (e) Identify each circuit available at the flight data position.
- (f) State the type of information for which each circuit is used.
- (g) State the priority of various messages.
- (h) Select standard interphone phraseology.
- (i) Transmit various types of messages using standard interphone procedures and phraseology.
- (j) Select alternate methods of relaying interphone messages.
- (k) List the proper offices to be notified of an interphone failure.
- (l) List the reports required when an interphone failure occurs.

(4) Receive and Relay Weather Information. In accordance with Orders 7110.65, 7210.3, and 7900.5, Surface Weather Observing—METAR, and local directives, the individual shall be able to:

- (a) Identify types of surface aviation weather reports.
- (b) Decode and encode surface aviation weather reports.
- (c) State requirements for PIREPs, SIGMETs, and AIRMETs.
- (d) Receive, post, and relay weather reports.
- (e) Decode terminal forecasts.

(5) Unusual Situations. In accordance with Orders 7110.65 and 7210.3 and local directives, the individual shall be able to:

- (a) Identify the personnel authorized to declare an emergency.
- (b) State notification procedures and the parties to be notified in an emergency situation.

- (c) State the location and types of emergency equipment available.
 - (d) State the procedures for initiating an emergency alert and notifying emergency equipment.
 - (e) State the procedures for handling information requests and alert notices.
 - (f) State the actions required in the event of a hijack or aircraft bomb threat.
 - (g) Select the course of action required upon receipt of an unidentified flying object sighting report.
 - (h) State the actions required for handling special flight operations.
 - (i) State the FAA policy regarding release of information and the persons authorized to receive such information.
 - (j) Identify the persons authorized to request transmission of alerts through FAA facilities.
 - (k) State the actions that are required of a specialist involved in an incident.
 - (l) Select the course of action required when receiving sonic boom, reckless flying, and noise/damage complaints.
- (6) Receive and Relay NOTAM Information. In accordance with Orders 7110.65, 7340.1, and 7930.2, Notices to Airmen; and local directives, the individual shall be able to:
- (a) Encode and decode NOTAMs.
 - (b) Receive, relay, and post NOTAM information.
- (7) Operate ATIS. In accordance with Orders 7110.65 and 7210.3, the individual shall be able to:
- (a) Explain the function, operating procedures, control criteria, and message content of the ATIS.
 - (b) Prepare and broadcast an ATIS message in accordance with prescribed procedures.
- (8) Operate Standby Radio Equipment. In accordance with local equipment familiarization checkout procedures, the individual shall be able to:
- (a) Identify standby and emergency communications equipment at his/her facility.
 - (b) State the frequencies assigned to standby equipment at his/her facility.
 - (c) Explain the operation of various types of standby equipment.

(9) Change Tape Recording Reels.

- (a) State the requirements for use of recorders at Air Traffic facilities.
- (b) State the order of priority for assignment of recorder channels at terminal facilities.
- (c) State the requirements for checking and changing recorder tapes at his/her facility.
- (d) List the three items that are placed on each recorder reel before storage.
- (e) State the actions required when the tape recorder alarm system at his/her facility is activated.

(10) Monitor Navigational Aids. In accordance with Orders 7110.65 and 7210.3, the individual shall be able to:

- (a) Interpret monitor panel indications.
- (b) State the functions of the automatic course alignment and signal monitor and the automatic transfer and shutdown unit.
- (c) State NAVAID monitoring procedures.
- (d) Define VOR/VORTAC monitoring categories.
- (e) Determine when to attempt NAVAID restoration.
- (f) List the appropriate outage notification procedures.
- (g) Select the correct form to be used to record equipment outages.
- (h) Identify tower responsibilities during flight check.

(11) Operate Flight Data Input/Output (FDIO). In accordance with the FDIO User's Guide, the individual shall be able to:

- (a) Compose, in the proper format, routine messages that may be entered into the ARTCC central computer complex from an FDIO terminal facility.
- (b) Interpret computer-originated error responses and take corrective action.
- (c) Recognize errors in message construction and initiate message correction procedures prior to entry into the computer.
- (d) Identify major components of the FDIO and interpret the meaning of the various status lamps and switches.

(e) Install new strips in the flight strip printer and change the ribbon.

(f) Identify the function of the data communications control unit (DCCU) as an interface between the FDIO facility and the central computer complex.

(12) Report Tower Visibility.

(a) State various categories and types of visibility.

(b) State correct visibility reporting procedures.

(13) Test on Position Information.

b. Part I Evaluation.

(1) Locally prepared evaluation shall be administered on the information delivered during this portion of classroom training.

(2) Additional evaluations may be developed to evaluate the individual's progress as deemed necessary to meet facility and/or training needs.

c. Part II. This part of Stage II is conducted at the facility.

(1) Local Airport Information. The individual shall describe local airport information including:

(a) Local services:

- 1 Principal operations.
- 2 Location of local offices.
- 3 Services.

(b) Scheduled air carriers:

- 1 Names.
- 2 Principal routes.
- 3 Aircraft types.
- 4 Local special operations (testing, training).

(c) Air taxi, charter service, or fixed-base operation:

- 1 Names.

- 2 Principal routes.
- 3 Aircraft types.
- 4 Nature of operation.
- 5 Hours of operation.

(d) Military operations:

- 1 Offices—hours of operation.
- 2 Types of operations.
- 3 Aircraft types.

(e) Miscellaneous operations:

- 1 Civil Air Patrol.
- 2 Border Patrol.
- 3 Other.

(2) Local Area. Given an unlabeled chart of the local area depicting airway structures and NAVAID symbols, covering airspace that has a direct impact on the day to day ATC function, the individual shall label or draw the following:

(a) Airway structure:

- 1 Victor/jet.
- 2 Minimum altitudes (MOCA, MEA, MRA).
- 3 Intersections.
- 4 Mileage between fixes (nonradar facilities only).
- 5 Radials.

(b) Radio NAVAIDs:

- 1 NDBs.
- 2 VOR/VORTAC/TACAN areas.

(c) Boundaries.

- (d) Restricted and joint-use areas.
- (e) Approach aids.
- (f) Adjacent airport facilities.
- (g) Topographical features.
- (h) Departure and arrival routes:
 - 1 Preferential routing—inbound and outbound.
 - 2 Clearance limits—release fixes.
 - 3 Departure/arrival fix.
 - 4 Others as applicable.
- (i) Identifiers:
 - 1 VOR/VORTAC/TACAN.
 - 2 NDBs.
 - 3 Compass locators.
 - 4 Fan markers.
 - 5 Intersections.
 - 6 Waypoints.
 - 7 Other airports/heliports.

(3) **Position-Associated Equipment.** The individual shall demonstrate proper use and apply procedures of the following equipment:

- (a) **Terminal FDIO equipment.**
 - 1 **Equipment description and functions:**
 - (aa) Alphanumeric keyboard.
 - (bb) Error indicators.
 - (cc) Use of associated switches and keys.

- (dd) Flight strip printer.
- (ee) Receive-only mode.
- (ff) Tear-off bar.
- (gg) Forms sensing contact.
- (hh) Keys and lights.
- (ii) DCCU.
- (jj) Detection of hardware errors.
- (kk) Local data check light.
- 2 FDIO message entry:
 - (aa) Message fields.
 - (bb) Message types and examples.
 - (cc) Message composition and formats.
 - (dd) Message correction prior to entry.
 - (ee) Message entry procedures.
- 3 Computer acceptance checking and computer messages:
 - (aa) Acceptance checking.
 - (bb) Acceptance messages.
 - (cc) Qualified acceptance.
 - (dd) Rejection messages.
 - (ee) Error messages.
 - (ff) Error responses.
- (b) Interphone systems.
 - 1 Location and use of associated equipment:
 - (aa) Terminal boxes.

- (bb) Speakers.
- (cc) Jacks.
- (dd) Handsets.
- (ee) Headsets.
- 2 Use of lines:
 - (aa) Ring.
 - (bb) Discrete dial codes.
 - (cc) Voice call.
 - (dd) Automatic ring.
- 3 Operational characteristics:
 - (aa) Termination display.
 - (bb) Lighting systems.
 - (cc) Monitoring capabilities.
 - (dd) Conference circuits.
 - (ee) Override capabilities.
- 4 Circuit identification and location:
 - (aa) Name or number of each line.
 - (bb) Physical location on keybox panel.
 - (cc) Color or code (if applicable).
- 5 Alternate methods of relay:
 - (aa) Other Service F lines.
 - (bb) Commercial telephones.
 - (cc) Associated FSS.
 - (dd) Local tower emergency radio equipment.

- (ee) Computer systems.
- 6 Interphone failure notification procedures:
 - (aa) Appropriate maintenance notification.
 - (bb) Preparation of required reports of outages.
- (c) Radio communications equipment.
 - 1 Transmitter control panels.
 - 2 Receiver selector panels.
 - 3 Microphones.
 - 4 Standby equipment:
 - (aa) Location.
 - (bb) Types of equipment available.
 - (cc) Control panel operation.
 - (dd) Tuning or selection.
 - 5 Radio failure notification procedures:
 - (aa) Appropriate maintenance notification.
 - (bb) Preparation of required reports of outages.
- (d) ATIS/D-ATIS.
 - 1 Operation:
 - (aa) Recording time.
 - (bb) Playback procedure.
 - (cc) Updating procedures.
 - 2 Control panel:
 - (aa) Record button.
 - (bb) Reset button.

- (cc) Light indications.
- 3 Message content.
- (e) NAVAID monitoring devices.
 - 1 Aids:
 - (aa) Location.
 - (bb) Frequency.
 - (cc) Identification.
 - (dd) Operation.
 - 2 Monitoring panels:
 - (aa) Location.
 - (bb) Operation.
 - 3 Use of standby equipment.
 - 4 Notification procedures:
 - (aa) Appropriate maintenance notification.
 - (bb) Preparation of required reports of outages.
- (f) Recording equipment.
 - 1 Positions recorded.
 - 2 Servicing:
 - (aa) Recording time.
 - (bb) Playback procedure.
 - (cc) Tape change procedure.
 - (dd) Monitor panel.
 - (ee) Erasing procedure.

- (g) Other equipment.
 - 1 ARTS:
 - (aa) Alphanumeric keyboard.
 - (bb) Message entry and computer responses.
 - 2 Console instruments:
 - (aa) Altimeter(s).
 - (bb) Wind instruments.
 - (cc) Clocks.
 - 3 Lighting:
 - (aa) Airport lighting control panel(s).
 - (bb) Operational quarters.
 - 4 Miscellaneous equipment:
 - (aa) Light guns.
 - (bb) Time stamps.
 - (cc) Traffic counters.
 - (dd) Binoculars.
 - (ee) Runway visibility value/runway visual range (RVV/RVR) indicators.
 - 5 Personnel safety equipment.
- (4) Procedures.
 - (a) The individual shall briefly describe facility positions of operations including:
 - 1 Location.
 - 2 Major duties and responsibilities.

(b) The individual shall describe the general purpose and location of the following publications and shall explain the application of procedures contained therein, as they pertain to the flight data position:

- 1 FAA orders and/or handbooks.
- 2 Facility directives and memorandums.
- 3 LOAs.
- 4 Reading binder.
- 5 Aeronautical Information Manual (AIM).
- 6 Search and rescue procedures.

including: (c) The individual shall explain the handling of flight plans and flight progress strips

- 1 Format.
- 2 Methods of revising strips.
- 3 Local variances in strip format.
- 4 Control symbols.
- 5 Standard symbols.

(d) The individual shall compose interphone messages and describe requirements including:

- 1 Types and priorities of calls:
 - (aa) Emergency.
 - (bb) Control, coordination, and advisory.
 - (cc) Flight plans.
 - (dd) Other general information.
- 2 Standard procedures:
 - (aa) Proper routing of calls.
 - (bb) Call-up techniques.

- (cc) Answering techniques.
- (dd) Procedures for relaying various data.
- (ee) Acknowledgments and sign-off techniques.
- (ff) Phraseology.

including: (e) The individual shall interpret, disseminate, and describe requirements for NOTAMs

- 1 Types:
 - (aa) NAVAIDs.
 - (bb) Hazards.
 - (cc) Lighting.
 - (dd) Airports.
 - (ee) General.
- 2 Method of receipt.
- 3 Origination.
- 4 Display.

including: (f) The individual shall describe the procedures for maintaining daily records and forms

- 1 Collecting strips and records.
- 2 Checking daily traffic count.
- 3 Compiling daily tabulation.
- 4 Storing records and forms.

(g) The individual shall describe airport emergency equipment and procedures including:

- 1 Location.
- 2 Types available:
 - (aa) Firefighting.
 - (bb) Ambulance.

(cc) Off-airport equipment.

(dd) Other.

3 Methods of alerting:

(aa) Location of alarm.

(bb) Operation of alarm.

(cc) Coded categories of alert.

4 Offices to be notified.

(h) The individual shall describe procedures for conducting/receiving position relief briefings. The individual shall draw a local tower visibility chart and demonstrate the ability to identify specified visibility markers.

(5) Weather.

(a) The individual shall describe weather information including:

1 Types of reports available:

(aa) Surface observations.

(bb) Forecasts.

(cc) Winds aloft forecast.

(dd) Advisories.

(ee) Charts.

2 Source.

3 Time available.

4 Format.

5 Interpretation.

6 Disposition.

(b) The individual shall successfully complete the tower visibility examination in accordance with NWS standards. Request this exam from the following address:

Mike Monroney Aeronautical Center
FAA Academy, Meteorological Coordinator & Training Consultant, AMA-579
P.O. Box 25082
Oklahoma City, OK 73125

(c) For facilities designated as a LAWRS, the individual shall successfully complete the LAWRS examination in accordance with NWS standards. The individual is not required to complete the tower visibility exam.

2. OJT. Through OJT, the developmental shall demonstrate the ability to satisfactorily perform the applicable job functions listed in Appendix 2 of this order.

SECTION 4. STAGE III: CLEARANCE DELIVERY POSITION TRAINING (Course 55061)

GENERAL: The purpose of this development stage is to prepare the individual for clearance delivery position qualification and certification.

This stage of training is administered in two parts: classroom instruction and OJT.

PREREQUISITE: Successful completion of Stage II Classroom Training.

CLASSROOM TRAINING: The classroom portion of training is administered using lesson plans developed by the FAA Academy and the facility and conducted under the direction of the TA. In some facilities, classroom training for more than one area may be taught at the same time (e.g., flight data and clearance delivery). In these situations, lesson plans should be developed accordingly.

If a terminal facility does not have a support staff to conduct classroom instruction, the facility is responsible for developing self-study materials that will cover all of the required subject matter.

OJT: OJT shall be conducted in the operational environment under the direction of the individual's training team. OJT shall be conducted after successful completion of necessary classroom training.

1. **CLASSROOM TRAINING.** The individual shall successfully demonstrate the skills listed below in accordance with Orders 7110.65, 7210.3, and local directives, and shall complete an examination on the material.

a. Clearance Delivery.

- (1) State the functions of the clearance delivery position.
- (2) List the conditions for which departure clearances or departure instructions would be issued.
- (3) List IFR departure clearance items in sequence.
- (4) State when the term "ATC" shall be used as a clearance prefix.
- (5) Define clearance limit.
- (6) Describe a NAVAID fix, as determined by reference to a radial and distance from VORTAC when the fix is not named.
- (7) State when the directions of a takeoff/turn or initial heading to be flown may be specified.
- (8) State the standard phraseology used when necessary to assign a crossing altitude that differs from the SID altitude.
- (9) State the requirement that is applicable when route or altitude in a previously issued clearance is amended.
- (10) State the standard phraseology used to assign frequency and beacon code information to departing IFR aircraft.
- (11) Match beacon codes with the appropriate IFR departure categories.
- (12) List the conditions that must be met in order to issue an abbreviated departure clearance.
- (13) State the conditions and standard phraseology used to issue SVFR clearances.
- (14) State the conditions and standard phraseology used to issue a VFR/OTP clearance.
- (15) Select the provisions that should be included in gate hold procedures.
- (16) Select the provisions that should be included in pretaxi clearance procedures.

b. Local Clearance Delivery.

- (1) Describe the procedures and phraseology pertaining to:
 - (a) Gate hold procedures.
 - (b) Delivery of clearances.

(2) Explain the procedures and coordination requirements for:

- (a) Processing flight progress strips.
- (b) Processing flight plans.
- (c) Processing clearance requests.

(3) Explain the application of all position-related items in:

- (a) LOAs.
- (b) Directives.
- (c) Position binders.

(4) Explain ARTS data entry functions (if applicable).

c. Procedures. Describe the procedures for conducting/receiving position relief briefings.

2. OJT. Through OJT, the developmental shall demonstrate the ability to satisfactorily perform the applicable job functions listed in Appendix 2 of this order.

SECTION 5. STAGE IV: GROUND CONTROL POSITION TRAINING (Course 55062)

GENERAL: The purpose of this development stage is to prepare the individual for ground control position qualification and certification.

This stage of training is administered in two parts: classroom instruction and OJT.

PREREQUISITE: Successful completion of Stage II Classroom Training.

CLASSROOM TRAINING: The classroom portion of training is administered using lesson plans developed by the FAA Academy and the facility and conducted under the direction of the TA. In some facilities, classroom training for more than one area may be taught at the same time (e.g., ground and local control). In these situations, lesson plans should be developed accordingly.

If a terminal facility does not have a support staff to conduct classroom instruction, the facility is responsible for developing self-study materials that will cover all of the required subject matter.

OJF: OJF shall be assigned at the discretion of the training team in accordance with Chapter 3 of this order.

OJT: OJT shall be conducted in the operational environment under the direction of the individual's training team. OJT shall be conducted after successful completion of necessary classroom training.

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Appendix 6

1. CLASSROOM TRAINING.

a. Part I—Ground Control Information.

(1) **Introduction/Overview.** The individual shall be provided pertinent information concerning his/her working environment.

- (a) Airport layout-related knowledge.
- (b) Cab layout-related knowledge.
- (c) LOAs, facility directives, orders, notices, performance standards, and position responsibilities.
- (d) Radio/interphone equipment-related knowledge.

(2) **Aircraft Recognition and Characteristics.** The individual shall successfully demonstrate the skills listed below in accordance with Orders 7110.65 and 7340.1:

- (a) Define categories of aircraft and the terminology associated with aircraft operating characteristics.
- (b) Identify the general recognition features used in aircraft identification.
- (c) Explain the methods used to assign aircraft designators and names.
- (d) Recognize selected civil aircraft and determine the category.
- (e) Identify selected military aircraft.
- (f) Identify selected helicopters.

(3) **Airport Utilization.** The individual shall successfully demonstrate the skills listed below in accordance with Orders 7110.65 and 7210.3, local facility directives, and local airport procedures:

- (a) State the weather criteria that determine the activation of the system localizer and glideslope critical area restrictions.
- (b) Assign the proper runway for departures at airports that do not have a runway-use program.
- (c) Explain the purpose of formal and informal runway-use programs.
- (d) State wind velocity criteria when describing the wind as calm.
- (e) Define the conditional uses of and criteria for initiating intersection takeoffs.
- (f) Describe the physical location of the airport diagram.

10 State certain clearances to avoid in ground operations when applying wake turbulence procedures.

11 State the requirements and phraseology used to inform a pilot of an observed abnormal aircraft condition.

12 State the terms used to describe braking action.

13 State the requirements for issuing airport condition information to a pilot.

14 Select the airport conditions that warrant issuance of airport condition information.

15 State the phraseology used to describe aircraft identifications.

16 State the phraseology used to describe types of aircraft.

(b) Taxi Information and Clearance.

1 List, in sequence, the radio message format for initiating and replying to communication with an aircraft.

2 State the procedures and phraseology for transferring radio communications.

3 State the coordination requirements between ground control and local control, including those for the prevention of "runway incursion."

4 State the procedures and phraseology for formulating and issuing taxi information and clearances, including information and clearances for taxiing helicopters.

5 Select the phraseology that excludes conditional phrases.

6 List the methods used by ground control to determine the position of an aircraft.

7 State the requirements and phraseology for runway visibility reporting.

8 State the requirements for issuing departure information.

9 State the departure information that may be omitted if the pilot states "Have Numbers" or the appropriate ATIS code.

10 State who is responsible for the movement of aircraft or vehicles within loading, maintenance, or parking areas.

(6) Emergency Procedures and Unusual Situations. This section is presented in two parts: 1) determination and use of procedures in emergency situations, and 2) procedures used for handling unusual situations that require special handling but are not classified as emergencies. The individual shall successfully demonstrate the skills listed below in accordance with Orders 7110.65 and 7210.3:

(a) Emergency procedures.

1 Describe in general terms when an emergency exists.

- 2 State the basis for the type of assistance needed in an emergency situation.
 - 3 List four individuals who may make a determination that a potential or actual emergency exists.
 - 4 Identify who is responsible for handling a ground emergency after the alert has been initiated and for determining the emergency vehicle route.
 - 5 State what action is required by ground control when a ground emergency occurs outside the airport proper.
- (b) Unusual situations.
- 1 State to whom suspicious activity regarding the use of aircraft will be reported.
 - 2 State the procedures to follow when the pilot of Presidential or Vice Presidential aircraft makes a request concerning the movement of the aircraft.
 - 3 Define the meaning of the code phrase "Safe Air One."
 - 4 State the action to take when called by an experimental aircraft that intends to depart.
 - 5 State the procedure to follow when information is received concerning an aircraft bomb threat.

b. Part II—Site-Specific Ground Control Information.

(1) Position-Associated Equipment. The individual shall utilize and apply procedures for ground control position equipment including:

- (a) Radio/telephone main and standby equipment.
- (b) NOTAM and weather-posting locations.
- (c) FDIO printer and keyboard.
- (d) ATIS recording equipment.
- (e) RVR digital panel, RVR meter, and/or RVV meter.
- (f) Visibility chart.
- (g) Airport status board.
- (h) Light gun.
- (i) BRITE/DBRITE.
- (j) Airport Surface Detection Equipment (ASDE).

- (k) Airport ground lighting.
 - (l) Approach lighting systems.
 - (m) Obstruction lighting.
 - (n) Personnel safety equipment.
 - (o) ARTS.
- (2) Procedures.

(a) The individual shall explain the application of procedures contained in the following publications as they pertain to the ground control position:

- 1 FAA orders and/or handbooks.
- 2 Facility directives and memoranda.
- 3 LOAs.
- 4 Reading binder.
- 5 AIM.
- 6 Search and rescue procedures.

(b) Describe procedures for conducting/receiving position relief briefings.

c. Evaluation.

(1) Part I Test. The individual shall complete an examination on the material contained in Part I.

(2) Given a blank diagram of your airport, and in accordance with local directives and local airport procedures, the individual shall be able to:

- (a) Draw the airport movement area and label movement areas that are not visible to the tower.
- (b) Label the users, uses, and/or restrictions for gates, concourses, or parking areas.
- (c) Label each taxiway with a designator and label as "preferential" those used as inbound and/or outbound routes for each runway.
- (d) List any taxiways that are limited in use and the restrictions that apply.
- (e) Label the "special use" areas, such as compass rose, bomb threat, runways, and hazardous cargo.
- (f) List the runways included in a runway-use program and tell whether the program is formal or informal.

(g) Label the area(s) designated as short takeoff and landing (STOL) runway(s) and state the requirements and conditions for use.

(3) Airport Layout. Given an unlabeled chart of the airport layout depicting runways, airport movement areas, and structures, and in accordance with local procedures, the individual shall:

(a) Indicate airport elevation and point of reference.

(b) Identify landing and takeoff areas as follows:

1 Runways, including:

(aa) Number and magnetic heading.

(bb) Surface composition (other than hard surface).

(cc) Marking special or restrictive use:

- STOL.
- Closed portions.
- Displaced thresholds.

(dd) Length and width.

(ee) Distance remaining from intersections.

(ff) Lighted or unlighted, arresting barriers/cable systems.

2 Helicopter pad(s), including:

(aa) Location(s).

(bb) Identification.

(cc) Marking.

(c) Identify the following areas and indicate whether they are movement areas or nonmovement areas:

1 Taxiways:

(aa) Width.

(bb) Number and identification.

(cc) Lighted or unlighted.

(dd) Restrictions:

- Inbound.
- Outbound.

2 Ramp and gate locations:

(aa) Itinerant.

(bb) Air taxi.

(cc) Fixed-base operations.

(dd) Air carrier.

(ee) Military.

(ff) Cargo.

(gg) Helicopter.

(hh) Restrictions:

- Time.
- Weight.
- Size.

3 Special-use areas:

(aa) Runup and “jet blast walls.”

(bb) Compass rose.

(cc) Bomb detection.

(dd) Explosive cargo.

(ee) VOR checkpoints.

(d) Identify structures and support facilities, including:

1 Emergency equipment.

2 Hangars:

(aa) Fixed base.

- (bb) Air carrier.
- (cc) Military.
- (dd) Private.
- 3 Building and facilities—terminals:
 - (aa) Main.
 - (bb) Air carrier.
 - (cc) Itinerant and air taxi.
 - (dd) Military.
 - (ee) Cargo.
- 4 FAA facilities:
 - (aa) Tower.
 - (bb) Radar site.
 - (cc) Transmitter and receiver site.
 - (dd) Transmissometer site.
 - (ee) FSS/AFSS.
 - (ff) Flight Standards field elements.
 - (gg) Airway Facilities field elements.
 - (hh) Airport district office.
- 5 Customs.
- 6 Security.
- 7 Airport management:
 - (aa) Offices.
 - (bb) Maintenance.
- 8 Weather Service Office.

2. **OJT.** Through OJT, the developmental shall demonstrate the ability to satisfactorily perform the applicable job functions listed in Appendix 2 of this order.

SECTION 6. STAGE V: LOCAL CONTROL/CAB COORDINATOR POSITION TRAINING (Course 55063)

GENERAL: The purpose of this development stage is to prepare the individual for local control position qualification and certification and cab coordinator position qualification and certification.

This stage of training is administered in two parts: classroom instruction and OJT.

PREREQUISITE: Successful completion of Stage II Classroom Training.

CLASSROOM TRAINING: The classroom portion of training is administered using lesson plans developed by the FAA Academy and the facility and conducted under the direction of the TA.

If a terminal facility does not have a support staff to conduct classroom instruction, the facility is responsible for developing self-study materials that will cover all of the required subject matter.

OJF: OJF shall be assigned at the discretion of the training team in accordance with Chapter 3 of this order.

OJT: OJT shall be conducted in the operational environment under the direction of the individual's training team. OJT shall be conducted after successful completion of the necessary classroom training.

1. CLASSROOM TRAINING.

a. Part I—Local Control Information.

(1) Introduction/Overview. The individual shall be provided pertinent information concerning his/her working environment. The instructor must determine what local facility and area information is pertinent for individuals training at each facility. The suggested areas of study are outlined as follows:

(a) Terminal area local procedures.

(b) LOAs, facility directives, orders, notices, performance standards, and position description and responsibilities.

(c) Radio/interphone equipment. Training programs in previous sections have covered the required knowledge in this area. That knowledge and OJT will enable individuals to perform the duties of local control in a more efficient manner.

(2) Airport Lighting. The individual shall successfully demonstrate the skills listed below in accordance with Orders 7110.65 and 7340.1, AIM, AC 150/5345-46, and local directives:

(a) State when airport and heliport (rotating) beacons and obstruction lights are operated, and recognize them by color and characteristics.

(b) Determine the hours of operation, color, intensity, and emergency operation of runway and taxiway lights.

(c) List the requirements for the operation of high-speed turnoff lights.

(d) Identify the methods and procedures for operation of high- and medium-intensity runway lights, runway centerline lights, and touchdown zone lights.

(e) State the requirements for the operation of approach lights, sequenced flashing lights, visual approach slope indicators, and runway end identifier lights.

(3) Separation Minimums. This section is presented in five parts: 1) runway separation, 2) simultaneous operations on parallel runways, 3) helicopter separation, 4) initial IFR separation, and 5) visual separation. The individual shall successfully demonstrate the skills listed below in accordance with Orders 7110.65 and 7210.3:

(a) List the three aircraft categories and describe the type of aircraft included in each category.

(b) Determine the proper separation between a departing aircraft and another aircraft using the same runway.

(c) Determine when takeoff clearance or landing clearance may be issued, anticipating that prescribed separation will exist.

(d) Determine when a small aircraft may take off behind a departing large aircraft from an intersection on the same runway.

- (e) Determine the proper separation between an arriving aircraft and another aircraft using the same runway.
 - (f) Determine the proper separation for aircraft using intersecting runways.
 - (g) State when arriving touch-and-go, stop-and-go, and low-approach aircraft are considered departing aircraft.
 - (h) Determine when a low approach of not less than 500 feet above the runway may be authorized.
 - (i) State the conditions that must be met when authorizing simultaneous operations on parallel runways.
 - (j) Determine the proper separation between a departing or arriving helicopter and another helicopter.
 - (k) Determine the initial IFR separation required for:
 - 1 Successive departing aircraft.
 - 2 Departing and arriving aircraft.
 - (l) Identify procedures governing VFR departure of IFR aircraft.
 - (m) Describe the two methods of applying visual separation.
 - (n) Describe the traffic situations for which a VFR tower may be authorized to provide visual separation.
- (4) Heavy Jet/Wake Turbulence Separation Procedures. The individual shall successfully demonstrate the following skills listed below in accordance with Order 7110.65 and AC 90-93, Operating Procedures for Airport Traffic Control Towers That Are Not Operated by, or Under Contract With, the United States (Non-Federal):
- (a) Determine minimum separation standards that apply to aircraft following large/heavy jet aircraft.
 - (b) Determine when to give wake turbulence advisories.
 - (c) Use correct phraseology when giving wake turbulence cautionary advisories.
- (5) Control Procedures—Landing, Spacing, and Sequencing. The individual shall successfully demonstrate the skills listed below in accordance with Order 7110.65:
- (a) Determine what information should be included in a clearance to hold VFR aircraft.
 - (b) Select the phraseology for establishing the sequence of arriving and departing aircraft by requiring them to adjust flight or ground operation in order to achieve proper spacing.
 - (c) Select the phraseology to authorize an aircraft to make a touch-and-go.

- (d) Match the components of a standard traffic pattern with their definitions.
 - (e) Identify the basis for providing ATC service.
 - (f) Determine when to provide preventive control service.
 - (g) Determine procedures governing an overhead approach.
 - (h) State arrival/landing information that may be omitted if the pilot states "Have Numbers" or the appropriate ATIS code.
 - (i) Determine the priority of service provided between aircraft practicing instrument approaches and itinerant aircraft.
- (6) Control Procedures—Runway Use and Related Information. The individual shall successfully demonstrate the skills listed below in accordance with Order 7110.65:
- (a) Select the phraseology for instructions to aircraft arriving/departing simultaneously on intersecting runways and to arriving aircraft exiting the runway after landing.
 - (b) Select the phraseology for issuing wind information and for canceling takeoff clearance.
 - (c) Select the procedure to use when it appears that an aircraft is in violation of an FAR.
 - (d) Determine when to hold aircraft short of the ILS critical areas.
 - (e) State when local control must issue the prevailing visibility and RVR/RVV to arriving aircraft.
 - (f) Determine when to instruct a departing IFR aircraft to contact departure control.
 - (g) Select the terms describing the quality of braking action.
 - (h) Determine the procedures to use when issuing clearance to land to an aircraft that is *not* in sight.
 - (i) Determine when to issue cautionary wake turbulence advisories, wind-shear information, safety alerts, and bird advisories.
 - (j) Determine under what conditions an aircraft may be authorized to cross the class D airspace at an airspeed in excess of 250 knots.
 - (k) Identify procedures governing a VFR departure of an IFR aircraft and procedures governing a closed/unsafe runway.

(7) **Helicopter Aerodynamics.** This section is presented in two parts: 1) the forces acting on a helicopter and the factors affecting its various maneuvers, and 2) the functions of the controls used during helicopter flight. The individual shall successfully demonstrate the following skills in accordance with AC 61-13:

- (a) Identify the four forces acting on a helicopter.
- (b) State the factors affecting the various maneuvers of a helicopter.
- (c) State the functions of the four controls used during helicopter flight.

(8) **SVFR—Fixed-Wing Aircraft/Helicopters.** The individual shall successfully demonstrate the skills listed below in accordance with Order 7110.65:

- (a) Determine where, when, and under what conditions SVFR may be authorized.
- (b) Explain the basis for approval of SVFR operations.
- (c) State the proper phraseology for approving SVFR flights into, out of, through, or within a surface area.
- (d) Apply minimum separation between fixed-wing SVFR aircraft, fixed-wing SVFR and IFR aircraft, SVFR helicopters, and SVFR helicopters and IFR aircraft.
- (e) State the weather minimums applicable to both fixed-wing aircraft and helicopters requesting SVFR clearances and the required controller actions when less than minimum weather conditions exist.
- (f) Specify the priority afforded IFR aircraft over those requesting SVFR clearances, and the procedures to inform SVFR flight of the delay.

(9) **Emergency Procedures and Unusual Situations.** This section is presented in two parts: 1) emergency situations and the procedures to determine a course of action, and 2) unusual situations not covered by standardized rules. The individual shall successfully demonstrate the skills listed below in accordance with FAR, Part 105; Orders 7110.10, 7110.65, and 7210.3; local directives; and LOAs:

- (a) Identify emergency situations and select a course of action.
- (b) State minimum required information for inflight emergencies.
- (c) Determine required notifications.
- (d) Identify the five methods of aircraft orientation.
- (e) Determine when to exercise priority or special handling.
- (f) Determine a course of action for operations that are not normally encountered on a routine basis.

(10) BRITE/DBRITE Qualification. The individual shall successfully demonstrate the skills listed below in accordance with TM-14-2 (BRITE I and II/DBRITE), Orders 7110.65 and 7210.3, and ETM-12-0-1 (Fundamentals of Primary and Secondary Surveillance Radar):

- (a) Define terms associated with primary radar and the ATC radar beacon system.
- (b) List the five basic components of BRITE/DBRITE.
- (c) Select and match BRITE/DBRITE controls with their functions.
- (d) Select the correct procedures used in the operation of BRITE/DBRITE by tower controllers.

(11) Wind Effects. This section is presented in two parts: 1) basic wind theory, operations under normal circumstances, and the characteristics of hazardous wind; and 2) wind shears and wind-shear detection equipment. The individual shall successfully demonstrate the following skills in accordance with AC 00-6A and AC 61-23:

- (a) Define the forces that govern wind circulation.
- (b) Identify conditions associated with hazardous weather, including:
 - 1 Air masses and fronts.
 - 2 Turbulence.
 - 3 Clear air turbulence.
 - 4 Thunderstorms.
 - 5 Tornadoes.
 - 6 Hurricanes.
 - 7 Wind Shear
 - 8 Micro Burst

b. Part II—Local Control Functions.

(1) Position-Associated Equipment. The individual shall utilize and apply procedures for local control position equipment including:

- (a) Radio/telephone, main, and standby equipment.
- (b) ARTS.
- (c) Teleautograph or electrowriter.
- (d) NOTAM and weather-posting location.

- (e) ATIS recording equipment.
- (f) FDIO printer and keyboard.
- (g) RVR digital panel, RVR meter, and/or RVV meter.
- (h) Airport status board.
- (i) Light gun.
- (j) ASDE.
- (k) Airport ground lighting.
- (l) Approach lighting systems.
- (m) Obstruction lighting.
- (n) Visibility chart.
- (o) Arresting barriers/cable systems.
- (p) Personnel safety equipment.
- (q) NAVAID monitoring panel.

(2) Procedures. The individual will:

(a) Explain the application of procedures contained in the following publications as they pertain to the local control position:

- 1 FAA orders and/or handbooks.
- 2 Facility directives and memorandums.
- 3 LOAs.
- 4 Reading binder.
- 5 AIM.
- 6 Search and rescue procedures.

(b) Describe procedures for conducting/receiving position relief briefings.

(3) BRITE/DBRITE Radar. The individual shall utilize and apply the operational procedures for BRITE/DBRITE by:

- (a) Matching components with function or feature.
- (b) Matching control knobs with their functions.

- (c) Matching adjustment steps with their expected results.
- (d) Describing primary and secondary surveillance radar.
- (e) Describing radar phenomena.
- (f) Identifying radar operations.
- (g) Describing beacon code assignment procedures.
- (h) Describing radar identification and handoff procedures.*
- (i) Explaining radar separation.*
- (j) Explaining departure/arrival procedures as they relate to the local control position.*
- (k) Describing radar additional services.*
- (l) Describing emergency procedures.*
- (m) Describing the stages of radar service.*
- (n) Describing procedures for the transition from radar to nonradar control.*

* These items must be covered at facilities that use BRITE/DBRITE for IFR separation

NOTE: Facilities that have BRITE/DBRITE must provide the BRITE/DBRITE qualification examination as part of the local control certification. Additionally, those facilities that use BRITE/DBRITE for IFR separation must provide the radar qualification examination as part of local control certification. Individuals who have previously completed these examinations successfully need not retake them at a new facility.

Qualification examinations can be ordered from:

Mike Monroney Aeronautical Center
Controlled Materials Unit, AMA-513
P.O. Box 25082
Oklahoma City, OK 73125

(4) ARTS. Using a simulated keyboard and quick-reference card pertaining to the operation of the ARTS system, the individual shall be able to:

- (a) List the units of equipment in the ARTS operational system.
- (b) List the principles of computer operation.
- (c) Define terms associated with ATC computer operation.
- (d) Interpret computer-generated data.
- (e) Identify associated and unassociated alphanumeric data.
- (f) Identify tabular data areas.
- (g) Recognize message error indications and system malfunction codes.

c. Evaluation.

(1) Part I Test. Complete an examination of the material covered in Part I.

(2) Airport Layout Map. Complete an airport layout map according to the criteria listed in Section 5, paragraph 1c(3) of this appendix. If the map has already been completed for ground control training, it does not have to be repeated.

(3) Terminal Area Map/Video Map. Given an unlabeled chart of the immediate terminal area depicting the surface areas, appropriate class B, C, and D airspace, topographical features, points of reference, and other airports, the individual shall identify the following:

- (a) Dimensions of all surface areas.
- (b) All airports and landing areas.
- (c) Instrument approach aids.
- (d) Visual reporting points.
- (e) Topographical features.
- (f) Obstructions.
- (g) Class B, C, and D airspace dimensions and altitudes, as appropriate.
- (h) Restricted and prohibited areas.
- (i) Any additional items as determined by the facility manager.

(4) Approach Chart Information. Given unlabeled approach plates, the individual shall label the following:

- (a) Initial altitude at approach fix.
- (b) Procedure turn—direction from course.
- (c) Final altitude until final approach fix (FAF).
- (d) Heading—final approach course.
- (e) Minimum descent altitude (MDA), height above touchdown (HAT), height above airport (HAA), and decision height (DH).
- (f) Missed approach.
- (g) Weather minimums.

3. OJT. Through OJT, the developmental shall demonstrate the ability to satisfactorily perform the applicable job functions listed in Appendix 2 of this order.

SECTION 7. STAGE VI: NONRADAR TERMINAL CONTROL (Course 55064)

GENERAL: The purpose of this development stage is to prepare the individual for qualification and certification using nonradar procedures.

This stage of training is administered in two parts: classroom/simulation training instruction and OJT.

CLASSROOM/SIMULATION TRAINING: This training is administered using lesson plans developed by the FAA Academy and the facility and conducted under the direction of the TA. In some facilities, classroom training for more than one position may be taught at the same time. In these situations, lesson plans should be developed accordingly.

If a terminal facility does not have a support staff to conduct classroom instruction, the facility is responsible for developing self-study materials that will cover all of the required subject matter.

OJF: OJF shall be assigned at the discretion of the training team in accordance with Chapter 3 of this order.

OJT: OJT shall be conducted in the operational environment under the direction of the individual's training team. OJT shall be conducted after successful completion of necessary classroom training.

1. CLASSROOM/SIMULATION TRAINING.

a. Part I—Nonradar Terminal Control Position. This instructional presentation shall prepare the individual to perform the following nonradar control functions in accordance with local directives; AC 61-27, Instrument Flying Handbook; and Orders 7110.65 and 7930.2:

- (1) Draw the terminal area map.
- (2) Identify and use IFR and VFR rules.
- (3) Apply separation standards.
- (4) Describe the use of the TERPs Manual.
- (5) Apply approach/departure procedures and minimum instrument approach altitudes.
- (6) Issue clearances, advisories, and control information using approved phraseology and proper format.
- (7) Review flight data for accuracy.
- (8) Relay weather reports and NOTAMs.
- (9) Receive and post flight progress reports.
- (10) Analyze traffic situations for potential conflicts.
- (11) Apply interfacility/intrafacility coordination requirements.
- (12) Provide flight assistance services.

b. Part II—Equipment and Procedures.

(1) **Position-Associated Equipment.** Utilize and apply procedure for nonradar approach control position equipment including radio/telephone, main, and standby equipment.

(2) **Procedures.**

(a) Explain the application of procedures contained in the following publications as they pertain to the nonradar terminal control position:

- 1 FAA orders and/or handbooks.
- 2 Facility directives and memoranda.
- 3 LOAs.

- 4 Position binders.
- 5 AIM.
- 6 Search and rescue procedures.

(b) Describe procedures for conducting/receiving position relief briefings.

c. Evaluation.

(1) Terminal Control Information.

(a) Given an unlabeled chart of local area depicting low-altitude and high-altitude airway structures and NAVAID symbols, and in accordance with local directives, the individual shall draw and identify:

- 1 All items required on the flight data area map.
- 2 Primary and secondary holding fixes.
- 3 Holding patterns and altitudes.
- 4 Minimum safe altitudes.

(b) Given unlabeled approach plates, the individual shall fill in or label the following:

- 1 Transitions.
- 2 Transition altitudes.
- 3 Initial altitude at approach fix.
- 4 Procedure turn—direction from course.
- 5 Final altitude until FAF.
- 6 Heading—final approach course.
- 7 MDA, HAT, HAA, and DH.
- 8 Missed approach.
- 9 Weather minimums.

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Appendix 6**d. Control Problem Administration.**

(1) In either a radar or nonradar facility, the individual shall be given a series of locally prepared comprehensive control problems of progressively increased complexity.

(2) Each nonradar facility shall administer nonradar control problems. The individual shall satisfactorily demonstrate the ability to control 15 or more IFR operations per hour on the last problem. The number of control problems shall be determined by the TA based upon individual needs.

(3) Each radar facility shall develop and administer radar-to-nonradar transition problems consistent with operational needs, as contained within local emergency contingency directives. Emphasis shall be placed on transition from the primary source of radar information to the primary backup mode and vice versa. Training shall ensure that personnel are knowledgeable in the procedures used to transition to the backup mode and that personnel can apply separation standards applicable to that mode.

(4) The control problems shall include traffic situations that involve:

- (a) Arrivals versus arrivals.
- (b) Departures versus departures.
- (c) Arrivals versus departures.
- (d) Arrivals versus ARTCC airspace and overflights.
- (e) Arcs versus holding pattern airspace.
- (f) Loss of communication.
- (g) Emergency procedures.
- (h) SVFR procedures.

e. Simulation Evaluation.

(1) Simulation evaluation scenarios shall be administered at regular intervals during the simulation segment of training. The evaluations shall be pass/fail. If the individual does not meet the requirements for successful completion of the scenario, the TA may determine that skill enhancement training is warranted. The skill enhancement training may include:

- (a) Classroom instruction,
- (b) CBI lessons, and/or
- (c) Instructional scenarios.

Skill enhancement training shall be followed by a re-evaluation scenario at the same complexity level as that at which the failure occurred.

(2) If the individual does not meet the requirements for successful completion of the evaluation scenario, the provisions of FAPM Letter 330-1 shall be followed.

2. OJT. Through OJT, the developmental shall demonstrate the ability to satisfactorily perform the applicable job functions listed in Appendix 2 of this order.

SECTION 8. STAGE VII: RADAR CONTROL (Course 55065)

GENERAL: The purpose of this development stage is to prepare the individual for radar control position qualification and certification.

This stage of training is administered in two parts: classroom/simulation training instruction and OJT.

PREREQUISITE: Successful completion of Stage VI (Nonradar Terminal Control).

CLASSROOM/SIMULATION TRAINING: This training is administered using lesson plans developed by the FAA Academy and the facility and conducted under the direction of the TA. In some facilities, classroom training for more than one position may be taught at the same time. In these situations, lesson plans should be developed accordingly.

If a terminal facility does not have a support staff to conduct classroom instruction, the facility is responsible for developing self-study materials that will cover all of the required subject matter.

OJF: OJF shall be assigned at the discretion of the training team in accordance with Chapter 3 of this order.

OJT: OJT shall be conducted in the operational environment under the direction of the individual's training team. OJT shall be conducted after successful completion of necessary classroom training.

1. CLASSROOM/SIMULATION TRAINING.

a. Part I—Radar Terminal Control Position.

(1) Given job-like situations pertaining to the operation of the radar approach control position, the individual shall successfully demonstrate the skills listed below in accordance with ETM-12-0-1 and Order 7110.65:

- (a) Describe primary and secondary surveillance radar.
- (b) Describe radar phenomena.
- (c) Identify radar operations.
- (d) Describe radar identification, handoffs, and beacon code assignment procedures.
- (e) Explain radar separation.
- (f) Explain departure/arrival procedures.
- (g) Describe radar additional services.
- (h) Describe emergency procedures.
- (i) Describe the stages of radar service.
- (j) Describe procedures for the transition from radar to nonradar control.

(2) At ARTS-III A- and ARTS-III E-equipped facilities, given a simulated keyboard and quick-reference card pertaining to the operation of the ARTS III A or III E system, the individual shall successfully demonstrate the skills listed below in accordance with TM-11-4 (Students Reference Manual):

- (a) List the units of equipment in the ARTS III A or III E operational system.
- (b) List the principles of computer operation.
- (c) Define terms associated with ATC computer operation.
- (d) Interpret computer-generated data.
- (e) Identify associated and unassociated alphanumeric data.
- (f) Identify tabular data areas.
- (g) Recognize message error indications and system malfunction codes.

b. Part II—Equipment and Procedures.

(1) **Position-Associated Equipment.** The individual shall utilize and apply procedures for:

- (a) Radar indicators.
- (b) ARTS equipment, including local and regional adaptations.
- (c) Radio/telephone, main, and standby equipment.
- (d) Personnel safety equipment.
- (e) Radar system master control panel.
- (f) Other.

(2) **Procedures.** The individual shall:

(a) Explain the application of procedures contained in the following publications as they pertain to the radar control positions:

- 1 FAA orders and/or handbooks.
- 2 Facility directives and memorandums.
- 3 LOAs.
- 4 Position binders.
- 5 AIM.
- 6 Search and rescue procedures.

(b) Describe procedures for conducting/receiving position relief briefings.

c. Evaluation.

(1) The individual shall be able to pass the radar qualification examination.

(2) At ARTS-IIA-equipped facilities, the Terminal Field Course package available from the FAA Academy shall be administered to the individual.

(3) At ARTS-equipped facilities, the individual shall be able to pass the facility-developed ARTS examination.

(4) Given an unlabeled video map/overlay, the individual shall identify all items, plus:

- (a) Minimum vector altitudes.
- (b) Significant terrain areas and obstructions.
- (c) Primary radio frequencies for radar positions and adjacent control facilities.
- (d) Other items as determined by the facility.

(5) If the individual does not meet the requirements for successful completion of the examinations, the TA may determine that additional training is warranted.

(a) This training may include:

- 1 Additional classroom instruction and/or
- 2 CBI training.

(b) If the individual does not meet the requirements for successful completion after additional training, the provisions of FAPM Letter 330-1 shall be followed.

d. Radar Control Problem Administration. Radar simulation training in the National Terminal Air Traffic Training Program is being administered at terminal facilities utilizing the simulation capabilities of the ARTS equipment. Although not all facilities presently have the necessary equipment available for simulation training, the capability within the terminal ARTS structure does exist. The ETG/TTG Radar Training Course gives the developmental an opportunity to learn and demonstrate, under simulated conditions, all the knowledge and skills required of an FPL.

(1) General.

(a) At facilities where ETG/TTG is available, the TA shall determine the number of radar simulation training scenarios that the individual will complete. Periodic evaluation scenarios shall be conducted to determine the individual's progress through the completion of the scenarios.

Example: The TA may require the administration of 18 simulation training radar problems, with numbers 6, 10, 14, and 18 as pass/fail evaluations.

(b) It is necessary to complete scenarios at the lowest complexity level first and progressively work up to the highest. Scenarios at a given complexity level may be administered in any order to provide variation. The developmental shall be required to complete training on a given set of radar control problems similar to those in the first operational position. This requirement will ensure the developmental's exposure to the many prescribed special events and control situations that could occur.

(c) After completion of training on the first radar position, the developmental's progress shall be reviewed and the number of problems required on any succeeding position shall be mutually agreed upon by the facility support staff and operations supervisor.

(d) At facilities where simulation is used, all problems shall be counted as classroom hours.

(e) Up to 1 hour shall be allotted for the radar control problems. This does not include the time spent for briefing and critique. The instructor is not precluded from terminating the simulated problem prior to the time indicated if it has been determined that the maximum instructional benefit of the problem has been derived.

(f) The results of the individual's performance during each scenario shall be recorded on FAA Form 3120-25 and discussed with the individual (see Appendix 2, pages 5 and 6 of this order). Forms used during the evaluation scenario shall be retained and filed in the individual's training folder.

(2) Control Problem Development.

(a) Definitions.

1 Volume level: A measure of specialized activity expressed as a percentage of the maximum number of operations an FPL is expected to handle at each operational position.

2 Complexity: Factors, other than traffic volume, experienced in controlling traffic at a given operational position.

(b) General Objectives. To achieve standardization of volume level and problem complexity for all field facilities, the following problem development procedures have been established:

1 Control problems shall be developed for each operational position starting at the 50 percent volume level and progressively increasing to the 110 percent volume level. The additional 10 percent will be added to ensure that the developmental encounters a greater volume of traffic than he/she will normally be expected to control.

2 The formula is based on 110 percent traffic volume from an average period of a busy day (as defined and validated by the facility).

3 To protect problem integrity, some variations of the problem should be made. Changes in aircraft identifications, equipment types, altitudes, and times are usually adequate for developing problem variations. Selecting random aircraft for special situations will also add depth to problem variations.

4 The instructor shall determine the weather, flight conditions, VFR traffic, and any abnormal conditions that may affect the overall problem complexity and controller workload. The instructor shall simulate these conditions as nearly as possible to add realism to the problem.

5 The instructor shall randomly incorporate pilot readback errors throughout the radar control problems. These are intentional readback errors made by ghost pilots to the developmental in order to evaluate the developmental's listening skills.

6 All control problems shall have specific objectives and be directed toward developing the knowledge and ability of those receiving the training. The instructor shall ensure that all problem objectives are met.

7 The instructor shall introduce operations or situations that directly relate to problem complexity. Normally it is more effective to introduce these complexity factors at a lower volume level to facilitate learning the associated procedure. If normal operational requirements dictate predetermined changes in runway or airspace configurations or changes in services provided at an operational position which affect complexity, separate problems should be administered for each change. Each problem shall state objectives, volume level, and complexity factors. Where applicable, ASR approaches shall be conducted as part of this training.

8 Positive and methodical steps must be taken when developing simulated radar control problems. Complexity, special control events, abnormal traffic situations, weather conditions, script development, and Instructor Guides need to be considered to achieve the desired problem objectives.

(c) Simulation Training Problem Objectives. Each problem may contain one or more of the duties listed below. By the completion of this training, the developmental shall have independently performed all applicable duties.

- 1 Provide VFR traffic advisories.
- 2 Provide no-gyro vectors.
- 3 Control missed approaches.
- 4 Recognize weather on a radar display and advise aircraft concerned.
- 5 Vector aircraft around weather (if applicable).
- 6 Handle airfiles.
- 7 Recognize an aircraft with an inoperative transponder.
- 8 Issue speed control instructions.
- 9 Issue visual approaches.
- 10 Apply appropriate radio failure procedures.
- 11 Recognize when an aircraft is being hijacked and apply correct procedures.
- 12 Transition from ARTS failure to primary and secondary radar.
- 13 Resolve one emergency situation.
- 14 Transition from radar to nonradar separation due to radar failure.
- 15 Provide separation and service to an aircraft dumping fuel.
- 16 Apply additional facility-identified procedures.

Special situations should not be limited to those shown but should also include situations initiated by facility instructors.

NOTE: The guidelines outlined above have been proven to be most desirable when developing control problems. There may be other methods, such as obtaining 1 hour's traffic from the actual position and administering it as a control problem. There are pitfalls to this type of problem development because of the wide variance of traffic situations that do not always provide typical air traffic occurrences.

(3) Simulation Evaluation.

(a) Simulation evaluation scenarios shall be administered at regular intervals during the simulation segment of training. The evaluations shall be pass/fail. If the individual does not meet the requirements for successful completion of the scenario, the TA may determine that skill enhancement training is warranted. The skill enhancement training may include:

- 1 Classroom instruction,
- 2 CBI lessons, and/or
- 3 Instructional scenarios.

Skill enhancement training shall be followed by a re-evaluation scenario at the same complexity level as that at which the failure occurred.

(b) If the individual does not meet the requirements for successful completion of the evaluation scenario, the provisions of FAPM Letter 330-1 shall be followed.

2. OJT. Through OJT, the developmental shall demonstrate the ability to satisfactorily perform the applicable job functions listed in Appendix 2 of this order.